

REMARKS

Claims 1, 3, 5, 6, 8 and 10 are pending in this application. By this Amendment, claims 1, 3, 5, 6, 8 and 10 are amended. No new matter is added as the claim amendments merely clarify the features recited in the pending claims. Claims 2, 4, 7, 9 and 11-15 are canceled without prejudice to, or disclaimer of, the subject matter recited in those claims. A Request for Continued Examination is attached. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

The Office Action rejects claims 11-15 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Application Publication No. 2003/0157383 to Takahashi. The cancellation of these claims renders this rejection moot.

The Office Action rejects claims 1-8 and 10 under 35 U.S.C. §103(a) as being unpatentable over Takahashi in view of U.S. Patent No. 6,632,552 to Yamanashi. The Office Action also rejects claim 9 under 35 U.S.C. §103(a) as being unpatentable over Takahashi in view of Yamanashi and further in view of U.S. Patent No. 6,667,128 to Edlund. These rejections are respectfully traversed as to the remaining claims enumerated above.

As previously asserted, it must be noted that a previous Office Action rejected claims 1, 2, 6, 7, 11 and 12 under 35 U.S.C. §103(a) as being obvious over Yamanashi in view of Takahashi. Clearly, those rejections were overcome. Despite simply reversing the references, the analysis of the Office Action fails for at least the following reasons.

Claim 1 recites, among other features, cathode-side gas pressure detecting unit configured to detect a cathode-side gas pressure within at least one of the oxidizing gas supply line and the cathode; a target hydrogen partial pressure determining unit configured to dynamically calculate a target hydrogen partial pressure regarding a hydrogen pressure among a gas mixture in the anode, the dynamic calculation being based on the detected cathode-side gas pressure and a required electricity generation amount; a hydrogen supply pressure

calculating unit configured to calculate a hydrogen supply pressure of hydrogen to be supplied to the fuel cell based on the calculated target hydrogen partial pressure and the detected cathode-side gas pressure; and a hydrogen supply control unit configured to regulate the supply of hydrogen from the hydrogen supplying unit to the fuel cell at the calculated hydrogen supply pressure. Claim 6 recites similar features.

The Office Action quotes various paragraphs from Takahashi and asserts that the references disclose among other features "a target impurities partial pressure determining unit configured to dynamically calculate a target impurities partial pressure." The analysis of the Office Action is unreasonable first in that there is no dynamic calculation of any target partial pressure, for the impurities, or otherwise of any gas pressure in Takahashi. Takahashi makes no reference whatsoever to making any calculation based on a detected pressure in the cathode-side or otherwise. Takahashi is concerned with an impurities concentration, (not partial pressure) and determines the concentration level of the impurities to be unacceptable based on a drop in performance of the fuel cell, not on any pressure levels of any gas in the disclosed system. Rather, as is explicitly stated in paragraph [0050], a *voltage* is detected, and as long as the *detected* voltage exceeds the output voltage per cell, a determination is made in the Takahashi device that the impurity gas concentration has not reached the upper limit of allowable gas concentration. Stated more succinctly, Takahashi measures voltage, compares that voltage to some predetermined voltage level, and in that manner determines that a concentration of impurity gases has not reached a specified, predetermined threshold.

The detection devices in Takahashi, from which the reference device receives its input, are ammeter 12 and voltmeter 13. There is no pressure sensor. The Office Action even references the curves shown in Fig. 2 of Takahashi which are plots of measured cell *voltage* to measured *current density* based on the sensors used in the Takahashi device. There is no determination of a hydrogen supply pressure to the fuel cell based on measured

detected, partial, controlled or calculated gas pressures in Takahashi. As such, this reference cannot reasonably be considered to suggest, even in combination with Yamanashi, executing any of the calculating or controlling methodologies executed by the subject matter of the pending claims. In other words, Takahashi would not have suggested (1) a cathode-side gas pressure detecting unit configured to *detect* a cathode-side gas *pressure* (2) a target hydrogen partial pressure determining unit configured to *dynamically calculate* a target hydrogen *partial pressure* regarding a hydrogen pressure among a gas mixture in the anode, the dynamic calculation being *based on the detected* cathode-side gas *pressure* and a required electricity generation amount; (3) a hydrogen supply pressure calculating unit configured to *calculate* a hydrogen supply pressure of hydrogen to be supplied to the fuel cell *based on the calculated* target hydrogen *partial pressure and the detected* cathode-side gas *pressure*; and (4) a hydrogen supply control unit configured to *regulate* the supply of hydrogen from the hydrogen supplying unit to the fuel cell at *the calculated* hydrogen supply *pressure*, as varying recited in the pending independent claims.

The Office Action concedes that Takahashi does not disclose any calculation being based on a gas pressure detected by the cathode-side gas pressure detecting unit. The Office Action alleges that Yamanashi makes up for this shortfall with respect to the subject matter of the pending claims. This analysis of the Office Action also fails at least because the portions of Yamanashi that are cited refer only to controlling differential pressures between the anode side and the cathode side to avoid rupturing the electrolytic membrane. Simply because pressures are measured on either side of the membrane does not mean that those inputs are taken to make any calculation regarding a hydrogen supply pressure of hydrogen to be supplied to the fuel cell based on the gas pressure detected by the cathode-side gas pressure detecting unit and a calculated target hydrogen partial pressure, as is recited, for example, in independent claim 1.

Further, the conclusory statement that it would have been obvious "to base the amount of hydrogen in the anode of Takahashi based on the air pressure for the benefit of not exceeding the amount of air required by the fuel cell" fails factually necessarily based on its unreasonability in view of the clear teachings of Takahashi, which indicate that the calculations are based on determining the electrical performance of the system, rather than on any gas pressures. There is no concern regarding maintaining a pressure in Takahashi. Takahashi regulates an impurities concentration in its fuel side gas purely based on a measured effective electrical output of the fuel cell, nothing more. To assert otherwise, only posits an unreasonable obviousness position in contradiction of the clear teachings of the reference.

Additionally, the above conclusory statement fails legally because it does not present proper evidence by which to prove that there is any reasonable predictability to make the asserted combination for any reason with any reasonable expectation of success that would have been recognized by one of skill. The Federal Circuit has consistently reaffirmed its prior holdings, and the U.S. Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007) confirmed, that "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977 (Fed. Cir. 2006) (quoting *In re Lee*, 277 F.3d 1338, 1343-46 (Fed. Cir. 2002), and *In re Rouffet*, 149 F.3d 1350, 1355-59 (Fed. Cir. 1998)). This standard is not met here as the articulated reasoning is unreasonable and cannot, therefore, be based on any rational underpinning.

The Supreme Court, in *KSR*, warned against just the type of analysis that is undertaken here. The Court opined "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the

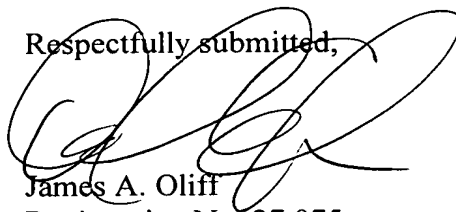
prior art. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known" (citation omitted). The Office Action fails to provide any reasonable basis for the bare assertion regarding pressure control, and the pressure control of Yamanishi would not have rendered obvious missing elements from Takahashi.

For at least the foregoing reasons, claims 1 and 6, and the claims depending therefrom, are patentable over the asserted combinations of applied references.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 3, 5, 6, 8 and 10 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:
Request for Continued Examination

JAO:DAT/cfr

Date: July 22, 2010

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